

RECEIVED

EX PARTE OR LATE FILED

APR 19 1993

DOCKET FILE COPY ORIGINAL

OET/PLM 4/8/93

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

On April 8, 1993, Paul L. Marrangoni, of the OET staff had telephone conversations with microwave equipment manufacturers concerning the adaptability of equipment used in the 1850-1990 Mhz to operate in the 1710-1850 Mhz band and related topics.

Gil Kowols of Mark Antenna Division.

Mr. Kowols related that their company offered several broadband antennas that cover the entire 1710-1990 MHz band. There are other models of antennas that are tuned to operate in a particular band e.g. 1850-1990 MHz. These antennas could probably be retuned or the feed horn could be exchanged for either a broadband or particular frequency range. On some older antennas there is no guarantee that a new feed could be supplied in which case a new antenna would be required. Mr. Kowols estimated that the cost to replace a feed horn would be in the \$400-\$500 for a grid antenna and the price of new antenna would be in the \$3000 dollar range. If a high performance antenna would be required to operate in the new environment there could be additional costs for the antenna and strengthening the tower. Wideband operation, pairing a frequency in the 1850 band with a frequency in the 1710 band could be accomplished with the use of a broadband antenna. Broadband antennas trade VSWR for broadband operation. The radio portion would need to be able to operate with the increased VSWR.

Seth Hanson of Gabriel Electronics, Inc.

Gabriel offers an international antenna that operates over the entire 1710-1850 MHz band. Other antennas are tuned to a particular band for example 1850-1990 MHz. The feed horn would need to be replaced in order for these antennas to operate in the 1710-1850 MHz band. The age of the antenna would dictate the complexity of changing the feed horn. Older antennas have been modified with new feed horns but required rebuilding the Vertex Plate. Gabriel redesigned their antennas to make them lighter about four years ago. However, there should be no problem in modifying antennas up to seven years old. Most of the products in the 1850-1990 MHz band would be of the older model.

Craig Skarpiak of Andrew Corp.

Andrew's 17 series operates from 1700 to 2100 MHz which covers the entire 1710-1990 MHz band. The 18 series is tuned to operate in the 1850-1990 MHz band. The transmission line should be suitable for operation across the entire 1710-1990 MHz band. The 18 series can be retuned to operate at the lower frequencies. In some cases, the antenna may operate well enough without retuning but the VSWR would increase. The estimated cost of retuning an

antenna depends on the dish size and ranges from \$1300-\$3800.

Tim Hansen of Digital Microwave

The impression was that a new RF section would be required to operate a radio currently operating in the 1910-1930 MHz range in the 1710-19850 Mhz band. The antenna and feed line should be suitable to support operation at the lower frequencies. The radio would require at a minimum new filters. The cost could range from a few hundred dollars to 70% of the cost of new radio if the rf head needs to be replaced. There are a lot of older analog radios in operation that are no longer supported by manufacturers, it would not be economically feasible to modify these radios. Digital radios are complex in design may be difficult to modify. The minimum frequency spacing for paired operation is around 40 MHz. Frequency paring across the entire 1710-1990 Mhz should be possible.

John Staples of TeleSciences

TeleSciences offers radios that operate over the entire 1710-1990 band but the frequency of operation must be specified. TeleSciences radios are capable of tuning up to 20 MHz without modification. For operation beyond 20 MHz the bandpass filters must be retrofitted to the new frequency. The estimated cost of a retrofit is \$2500 the bandpass filters. There is no problem with operating paired frequencies across the entire 1710-1990 MHz band. The antenna may required to be modified by changing the feed horn. Estimated costs to modify the antenna are 30%-40% of the cost of the antenna.